

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 747 289 B1 A: 1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
14.07.1999 Bulletin 1999/28

(51) Int. Cl.⁶: **B65B 51/02, B31B 1/62**

(21) Application number: **96107661.9**

(22) Date of filing: **14.05.1996**

(54) Method and device for making cigarette packets from packaging blanks

Verfahren und Vorrichtung zum Herstellen von Zigaretenschachteln aus Verpackungszuschnitten

Procédé et dispositif pour la fabrication de paquets de cigarettes à partir des flans

(84) Designated Contracting States:
DE FR GB IT

(30) Priority: **07.06.1995 IT GE950064**

(43) Date of publication of application:
11.12.1996 Bulletin 1996/50

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Verpacken von Zigaretten oder ähnlichen
stabförmigen Gegenständen "

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Description

[0001] The invention relates to a method of making cigarette hard packets with a hinged lid, which method involves folding a blank of packaging material which has a generally rectangular shape and is provided on each longitudinal side with pairs of tabs intended, when laid over each other, to form the long narrow sides of the packet and of the lid, and in order to fix the tabs to each other, a cold adhesive, that is an adhesive which is in the liquid or fluid state at ambient temperature, is applied to one side of one of the tabs of each pair associated with one of the faces of the blank. The invention also relates to a device for carrying out the method, according to the preamble of claim 3.

[0002] A method and apparatus of this kind are known from the document DE-A-37 25 833. When applying this known method, the use of cold adhesive only, which needs longer to dry and set, makes it necessary to provide some means of holding the packet in its finished shape until the adhesive has set sufficiently.

[0003] From the document DE-B-1 217 842 it is known to apply spots of hotmelt adhesive to at least one of the opposing surfaces of associated tabs, in order to hold them down while the cold adhesive is drying. This document discloses an usual cardboard box provided with four closure tabs, which are foldable over each other. Two opposite closure tabs are provided with spots of hotmelt adhesive, while the other two closure tabs are provided with spots of cold adhesive. This known method of the combined use of cold adhesive spots and hotmelt adhesive spots for closing cardboard boxes cannot be applied simply as such for the purpose of fixing tabs of cigarette hard packs while the cold adhesive is drying.

[0004] It is an object of the invention to provide a method and a device for making cigarette hard packets of the type described at the outset, with which it is possible to use hotmelt adhesive for the purpose of fixing tabs and holding the finished cigarette packets in the folded condition until the cold adhesive has set, and this in a simple, inexpensive way that is easy to carry out.

[0005] The invention achieves the above objects with a method of the type described at the outset and having the characterizing features of claim 1.

[0006] The invention also provides a device for carrying out the above method, as defined in claim 3.

[0007] The invention also encompasses other features which further improve the above method and device and these form the subject of the dependent claims.

[0008] The particular features of the invention and the advantages it provides will be shown in greater detail in the description of a preferred embodiment illustrated by way of a non-restricting example in the accompanying drawings, in which:

the device according to the invention

Fig. 2 is an enlarged plan view from above and partly in section of the device for applying the spots of hotmelt adhesive.

Fig. 3 is a plan view of the blank with the spots of applied hotmelt adhesive and with the areas of applied cold adhesive.

[0009] With reference to the figures, a device for making packets from packaging sheets, in particular from preshaped sheets of carton board, which are folded to form a packet and have tabs, margins or parts designed to be laid over each other and fixed together by adhesive means, comprises a unit for applying adhesive to the mutually contacting sides of at least one of said associated margins, tabs or parts of the packaging sheet 1. An example of such a blank is illustrated in Figure 3. This blank 1 is suitably shaped for making a rectangular parallelepipedal pack and has tabs 101, 101', 201, 201' intended to be fixed together by being laid over each other in the folded condition of the blank 1 and intended to form together the long, narrow sides of the pack and of an associated flip-up lid hinged along the back of the pack.

[0010] The blanks 1 are stacked and placed in a magazine 2 and are fed by a suction arm 3 moved by a system of cranks 4 and guide levers 5 to a suction drum 6 at the entrance of the adhesive applicator unit. The suction arm 3 executes a transverse movement relative to its length to withdraw one blank 1 from the bottom of the stack in the magazine 2 and in combination a forward and backward movement in its longitudinal direction, thereby presenting the collected blank 1 tangentially to the entrance suction drum 6. The entrance suction drum 6 is turned about its axis on an end-supported shaft 106 and operates in combination with a second or conveying suction drum 7 which is directly adjacent to it, virtually tangential but separated by a short distance. The conveying suction drum 7 takes the blank from the entrance drum 6 and feeds it into a station where cold adhesive is applied. In particular, the conveying drum 7 has at least one suction segment 107, preferably two diametrically opposite suction segments, possibly also more suction segments distributed around its periphery; and it is caused to rotate about its axis.

[0011] Each suction segment 107 substantially corresponds in area to the area of the blank 1. The suction segments comprise approximately radial channels 207, preferably arranged in a fan shape, which communicate with a low-pressure chamber 307 connected via a duct 407 to a generator of low and high pressure alternately. A pressure generator is advantageously used, the duct 407 being connected alternately to said generator and to atmospheric pressure by a rotary valve in accordance with the angular position of the suction segment 107. Thus, when it is picking up the blank 1 and when it is in the adhesive applicator station, the suction segment 107 is connected to the low-pressure generator,

Fig. 1 is a schematic front view, partly in section, of

whereas when it is in the discharge station it is connected to atmospheric pressure. In the pick-up station the blank is surrendered by the conveying drum 7 to a discharging conveyor 8, for example by a belt or pair of belts with suction action.

[0012] In the cold-adhesive applicator station, the suction segment 107 is situated directly above the cold-adhesive applicator means.

[0013] In the example illustrated, these means comprise an open-topped cold-adhesive tank 9 of which the open top is towards the conveying drum 7, that is towards the suction segment 107 which is temporarily in the cold-adhesive applicator station. The tank 9 extends below the entire area of the blank 1 in both the circumferential and axial directions of the conveying drum and the tank walls 109 oriented transversely to the axis of the conveying drum 7 comprise a concavity 209 coaxial with this conveying drum 7. Mounted in these walls are one or more shafts 110 for a plurality of rollers 10 for picking up and applying the cold adhesive. The shafts 110 lie alongside each other and their centres are positioned on an ideal circular line coaxial with the conveying drum 7, that is with the recesses 209. The rollers 10 and shafts 110 correspond in position with the desired areas of application of the cold adhesive and all dimensions are such that the rollers 10 are at least partially immersed in the cold adhesive on the side away from the conveying drum 7, while the part facing said conveying drum 7 is out of the cold adhesive.

[0014] The tank 9 together with the cold-adhesive pick-up/applicator rollers 10 is mounted on the free end of an arm 14 which at its other end is hinged at 114 in such a way as to be able to pivot freely about an axis parallel with the axis of the drum. The arm 14 includes a downward transverse extension 214 fitted with at least one roller 314 that turns on an axis parallel with the axis of the conveying drum 7 and that runs in a circular cam track 15 which is supported so as to rotate about an eccentric axis 115. The eccentric axis is vertically lower than the axis of the circular cam track 15 in order that the rotation of the cam will cause the tank 9 alternately to rise, bringing the rollers 10 into contact with the conveying drum 7, or rather with the blank 1, and then cause it to descend to a position substantially radially distant from said blank 1. The rotary actuation of the cam 15 and the rotary actuation of the cold-adhesive applicator rollers 10 are synchronized with the feeding of the blanks 1 into the cold-adhesive applicator station, in other words with the advancing steps of the entrance drum 6 and with those of the conveying drum 7. In this way, when a new blank 1 is being fed into the cold-adhesive applicator station and when it is being passed on to the subsequent discharge station, the tank 9 and the adhesive pick-up/applicator rollers 10 are held away from the blank 1, whereas when the conveying drum 7 is in its pause phase, the tank 9 with the rollers 7 moves towards it, bringing the rollers 10 into contact with the blank, and then withdraws. The rollers 10 always

present to the new blank 1 in the cold-adhesive applicator station a portion of their adhesive-carrying surface that has not yet come into contact with any blank and has therefore not yet deposited the adhesive distributed on itself. The adhesive is thereby transferred to the desired areas of the blank 1 in a touching or punching movement.

[0015] With reference to Fig. 3, each roller 10 is designed to produce a print 16 of cold adhesive on a predetermined part of the blank 1 - in the present case on the tabs 101' and 201' in particular, and in certain intermediate areas 301' and 401. These prints must have predetermined dimensions and a predetermined quantity of adhesive to avoid soiling. The blank 1 is advantageously conveyed through the cold-adhesive applicator station with a transverse orientation, preferably perpendicular to the longitudinal line of the prints of cold adhesive, that is to say in this case with the longitudinal axis of the blank 1 parallel with the axis of the conveying drum 7. When the box is in its formed condition, that is when the blank 1 is folded, other associated tabs or parts of the blank 1 marked 101 and 201 are laid over said areas 101' and 201' and said parts must be held against the tabs 101' and 201' until the cold adhesive has set sufficiently to prevent the associated superimposed parts from separating.

[0016] In order to hold said tabs 101, 101' and 201, 201' together for long enough to ensure that the cold adhesive has dried, downstream of the cold-adhesive applicator station and before the subsequent processing unit, that is before the blank leaves the adhesive applicator unit, there is a station where spots of hotmelt adhesive are applied to the tabs 101, 201. The spots of hotmelt adhesive 17 are advantageously applied to the tab 101, 201 associated with that to which the cold adhesive has been applied, in a position that will not coincide with the prints of cold adhesive 16 once the associated tabs 101, 101' and 201, 201' are brought into contact with each other.

[0017] With reference to Figs. 1 and 2, the hotmelt-adhesive applicator device comprises a tank 20 of hotmelt adhesive fitted with heating means, for example electrical resistors or the like, indicated globally by the numeral 21. Partly immersed in the hotmelt adhesive at the bottom of the tank 20 is a first pick-up roller 22 which is caused to rotate in synchronism with the advance of the blanks 1. An applicator roller 23 is supported in such a way as to be able to turn about an axis parallel with that of the pick-up roller 22 and comprises, distributed at equal angular intervals around its circumference, a plurality of pads 123 for picking up and applying the hotmelt adhesive: these are carried in a radially projecting position on the roller 23 and are oriented in the circumferential direction of the roller 23. The pads 123 consist preferably of coaxial circular arcs tangential to the peripheral surface of the pick-up roller 22. More particularly, said surfaces forming the pads 123 consist of the radially outermost surfaces of frustoconical teeth 223

situated at equal angular intervals around the hotmelt-adhesive applicator roller 23. The pick-up roller 22 and the applicator roller 23 are connected dynamically to each other by a train of gears 24, 25, 26 and are caused to rotate by the same motor or driven shaft.

[0018] With reference to the blank 1 for making hard cigarette packs with hinged lids, shown in Fig. 3, the spots of hotmelt adhesive 17 on the same side of the blank 1 are applied in line with each other in the longitudinal direction of the blank, that is transversely to the direction of advance of the blank 1, each at the adjacent ends of the tabs 101, 201 which are intended to form the internal sides of the long, narrow sides of the pack and are intended to be laid over the internal side of the associated tabs 101', 201'. The spots of hotmelt adhesive and the areas of cold adhesive must therefore be applied to the opposing sides of the associated tabs 101, 101' and 201, 201', so that the cold adhesive and hotmelt adhesive are applied to the opposite faces of the blank 1 in its unfolded condition. Furthermore the particular arrangement of the spots of hotmelt adhesive 17 enables them to be applied simultaneously for the tabs 101, 201 on the same side of the blank 1. If this is done, both the pick-up roller 22 and the applicator roller 23 are composed of two discs 122, 323 separated axially from each other by a distance equal to that between the spots of hotmelt adhesive 17 on the tabs 101 and 201. Each disc 323 of the applicator roller 23 has two frustoconical teeth 223 separated angularly from each other to produce spots of hotmelt adhesive 17 on the tabs 101, 201 on the two sides of the blank 1 as it passes through, that is on the forward side and on the rear side, with reference to the direction of advance, while the teeth 223 of the two discs 323 are axially in line with each other.

[0019] With reference to Fig. 1, the device for applying the spots of hotmelt adhesive, i.e. the applicator station for the spots of hotmelt adhesive is advantageously located at the exit end of the blank-discharging conveyor 8 of the adhesive applicator unit. This cuts down the time taken by the blanks to reach the immediately subsequent folding station, thereby enabling the blanks to be folded and hence the tabs 101, 101', 201, 201' to be laid over each other before the hotmelt adhesive has dried. After folding has been completed, the hotmelt adhesive dries much faster than the cold adhesive, which means that the spots of hotmelt adhesive temporarily hold the pack in the formed condition, that is with the tabs 101, 101' and 201, 201' bonded together, until the cold adhesive has set, without requiring the use of mechanical or other such folding means.

[0020] Thanks to their position only the four very small spots of hotmelt adhesive are sufficient to ensure the effect of holding the pack in the formed condition during the period necessary to the cold glue to become dry. For each tab 101 and 201, of the box and of the hinge lid, only one small spot 17 of hot-melt adhesive is sufficient. In this way the quantity of hotmelt adhesive used is very

small and it is possible to ensure the maintenance of the form of the pack, while the disadvantages of the hotmelt adhesive are avoided or reduced to a very low degree.

[0021] In another improvement, which not only enables the positions of the spots of hotmelt adhesive 17 on the blank 1 to be perfectly situated and adjusted, but also enables a plurality of spots of hotmelt adhesive to be produced in various positions along the longitudinal axis of the blank 1, that is along an axis transverse to the direction of advance of the blanks, the hotmelt-adhesive applicator device is mounted on a slide 27 which can be moved along tracks 28.

[0022] The invention is not of course limited to the embodiments described above and illustrated and can be greatly altered and modified, especially from the point of view of construction. Thus, the construction of the devices for applying the cold adhesive and the spots of hotmelt adhesive depends on the geometry and shapes chosen for the packet and hence for the blank. All of this is possible without departing from the invention as claimed below.

Claims

1. Method of making cigarette hard packets with a hinged lid, which method involves folding a blank (1) of packaging material which has a generally rectangular shape and is provided on each longitudinal side with pairs of tabs (101, 101', 201, 201') intended, when laid over each other, to form the long narrow sides of the packet and of the lid, and in order to fix the tabs (101, 101', 201, 201') to each other, a cold adhesive, that is an adhesive which is in the liquid or fluid state at ambient temperature, is applied to one side of one of the tabs (101', 201') of each pair associated with one of the faces of the blank (1), characterized in that, for the purpose of fixing the tabs (101, 101', 201, 201') while the cold adhesive is drying,

a) on the side of the other tabs (101, 201) on the opposite face of the blank, which are free of cold adhesive, at least one spot (17) of a hotmelt adhesive is applied, that is of an adhesive that reaches the fluid state at above-ambient temperature and is dried, solidified or desiccated at ambient temperature,

b) the tabs (101, 201) on the same side of the lid and of the pack and to which the spots (17) of hotmelt adhesive are applied, are adjacent to each other,

c) the cold adhesive (16) is applied before the spots (17) of hotmelt adhesive are applied, the latter being applied immediately before folding or forming the blank into a packet,

- d) the cold adhesive and the spots (17) of hotmelt adhesive are applied to areas not coinciding with each other on the opposing mutually contacting surfaces.
2. Method according to claim 1, characterized in that the blanks (1) are conveyed in the transverse direction of the blanks and of the areas (16) to which the cold adhesive is applied, while the spots (17) of hotmelt adhesive on the tabs (101, 201) on each side of the blank (1) are applied simultaneously and in line with each other in the longitudinal direction of the blank, that is perpendicularly to the direction in which it is being conveyed.
3. Device for carrying out the method according to any of the previous claims and comprising an adhesive applicator unit with means (6, 7, 8) for conveying packaging blanks (1) perpendicularly to their longitudinal sides from an entrance to an exit through at least one adhesive applicator station, conveyor means (8) for discharging the packaging sheets (1) from the adhesive applicator unit and for feeding them to a subsequent folding/forming station, in which device the adhesive applicator unit comprises a first cold-adhesive applicator station with means (9, 10, 14, 15) for applying cold adhesive (16) characterized in that the device comprises
- a hotmelt-adhesive applicator station with means (20, 21, 22, 23) for applying spots (17) of hotmelt adhesive to respective non-coinciding areas of the tabs (101, 101'; 201, 201') of the packaging sheet (1), the hotmelt-adhesive applicator means (20, 21, 22, 23) being located at the exit end of the conveyor means (8) for discharging the packaging sheets (1) from the adhesive applicator unit and directly upstream of the subsequent unit for folding them and for forming the packet,
 - the cold-adhesive and hotmelt-adhesive applicator means (10, 23) are formed by rollers turning about an axis parallel with the longitudinal dimension of the blank (1) and coming into contact with the corresponding areas (16, 17) of the corresponding tabs (101, 101'; 201, 201') on opposite faces of the blank (1),
 - the hotmelt-adhesive applicator means (20, 21; 22, 23) are located downstream of the cold-adhesive applicator means (9, 10, 14, 15) with reference to the direction in which the blanks (1) are conveyed.
4. Device according to claim 3, characterized in that the box and the hinge-lid are kept in form only by two very small spots (17) of hotmelt adhesive for each of the said parts, each spot being placed on the tab (101, 201) of each one of the two long narrow sides of the box and of the hinge-lid.
5. Device according to claim 3, characterized in that the means for applying the spots (17) of hotmelt adhesive are provided with a heated tank (20, 21) for the hotmelt adhesive and with an applicator roller (23) turning about an axis parallel with the blank (1) and perpendicular to the direction of advance thereof and provided with circumferential notches or pads (123) projecting radially and coming into contact alternately with the opposing surfaces of the blanks (1) and with the fluidized hotmelt adhesive, the rotation of which roller is synchronized with the movement of the blanks (1).
6. Device according to claim 5, characterized in that the applicator roller (23) carries two or more circumferential notches or pads (123) for applying spots (17) of hotmelt adhesive that are distributed at angles around the circumference of said applicator roller (23).
7. Device according to claim 5, characterized in that the applicator roller (23) comprises two or more notches or pads (123) distributed in line with each other or optionally staggered angularly along the axial length of the roller.
8. Device according to claims 6 and 7, characterized in that the applicator roller (23) consists of one, two or more coaxial discs (323) mounted on the same shaft so as to rotate together and able to be separated axially from each other.

Patentansprüche

1. Verfahren zur Herstellung von Zigarettenhartschachteln mit einem klappbaren Deckel, welches das Falten eines Zuschnittes (1) aus Verpackungsmaterial umfaßt, der eine im allgemeinen rechteckige Form und auf jeder Längsseite paarweise Streifen (101, 101'; 201, 201') aufweist, die dafür vorgesehen sind, die langen Schmalseiten der Schachtel und des Deckels auszubilden, sobald diese übereinander gelegt werden und um die Streifen (101, 101', 201, 201') zueinander zu befestigen, wird ein Kaltklebemittel, das ein Klebemittel ist, welches einen liquiden oder flüssigen Zustand bei Umgebungstemperatur aufweist, auf einer Seite auf einen der Streifen (101', 201') jedes Paares aufgetragen, welcher mit einer der Flächen des Zuschnittes (1) verbunden ist, dadurch gekennzeichnet, daß für den Zweck der Fixierung der Streifen (101, 101'; 201, 201'), während das Kaltklebemittel trocknet,

a) auf der Seite der anderen Streifen (101, 201)

auf der gegenüberliegenden Fläche des Zuschnittes, welche frei von Kaltkleber sind, zumindest ein Tropfen (17) eines Heißschmelzklebemittels aufgetragen wird, welches ein Klebmittel ist, das oberhalb Umgebungs-
temperatur den Flüssigkeitszustand erreicht und bei Umgebungstemperatur trocknet, erstarrt oder austrocknet,

b) die Streifen (101, 201), die auf der gleichen Seite des Deckels und der Packung liegen und auf die die Tropfen (17) des Heißschmelzklebemittels aufgetragen sind, aneinander angrenzen,

c) das Kaltklebemittel (16) vor dem Auftragen der Tropfen (17) des Heißschmelzklebemittels aufgetragen wird, wobei letzteres unmittelbar vor dem Falten oder Formen des Zuschnittes in eine Schachtel aufgetragen wird,

d) das Kaltklebemittel und die Tropfen (17) des Heißschmelzklebemittels auf Bereiche aufgetragen werden, die nicht miteinander auf den wechselseitig gegenüberliegenden Kontaktflächen zusammentreffen.

2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß die Zuschnitte (1) in Querrichtung der Zuschnitte und in den Bereichen (16) transportiert werden, in denen das Kaltklebemittel aufgetragen ist, während die Tropfen (17) des Heißschmelzklebemittels auf den Streifen (101, 201) auf jeder Seite des Zuschnittes (1) gleichzeitig und miteinander in Längsrichtung des Zuschnittes, die rechtwinklig zu der Transportrichtung ist, in einer Linie aufgetragen werden.

3. Vorrichtung zur Durchführung des Verfahrens nach einem der vorhergehenden Ansprüche, die eine Klebemittel-Auftrageeinheit umfaßt mit Mitteln (6, 7, 8) zum Transport von Verpackungszuschnitten (1), rechtwinklig zu ihren Längsseiten, von einem Eingang zu einem Ausgang durch zumindest eine Klebemittel-Auftragestation, mit Transportmittel (8) zum Entladen der Verpackungsbögen (1) von der Klebemittel-Auftrageeinheit und zu dessen Zuführung zu einer nachfolgenden Falt-/Formstation, wobei die Klebemittel-Auftrageeinheit eine erste Kaltklebemittel-Auftragestation mit Mitteln (9, 10, 14, 15) zum Auftragen von Kaltklebemittel (16) umfaßt, dadurch gekennzeichnet, daß die Vorrichtung umfaßt:

a) eine Heißschmelzklebemittel-Auftragstation mit Mitteln (20, 21, 22, 23) zum Auftragen von Tropfen (17) von Heißschmelzklebemittel auf entsprechende nicht zusammenfallende Gebiete der Streifen (101, 101'; 201, 201') des Verpackungsbogens (1), wobei die Heißschmelzklebemittel-Auftragsmittel (20, 21, 22,

23) am Ende des Ausganges der Transportmittel (8) zum Entladen der Verpackungsbögen (1) von der Klebemittel-Auftrageeinheit und direkt oberhalb der nachfolgenden Einheit, um diese zu falten und die Schachtel zu formen, angeordnet ist,

b) die Kaltklebemittel- und Heißschmelzklebemittel-Auftragsmittel (10, 23), welche durch Rollen ausgebildet sind, die um eine Achse parallel zur Längsrichtung des Zuschnittes (1) rotieren und in Kontakt mit den entsprechenden Bereichen (16, 17) der entsprechenden Streifen (101, 101', 201, 201') auf der gegenüberliegenden Fläche des Zuschnittes (1) kommen,

c) die Heißschmelzklebemittel-Auftragsmittel (20, 21, 22, 23), die unterhalb der Kaltklebemittel-Auftragsmittel (9, 10, 14, 15) in bezug auf die Transportrichtung des Zuschnittes (1) angeordnet ist.

4. Vorrichtung nach Anspruch 3, dadurch gekennzeichnet, daß die Schachtel und der Klappdeckel nur durch zwei sehr kleine Tropfen (17) des Heißschmelzklebemittels für jede der Teile in Form gehalten wird, wobei jeder Tropfen auf jedem Streifen (101, 201) der zwei langen Schmalseiten der Schachtel und des klappbaren Deckels vorgesehen ist.

5. Vorrichtung nach Anspruch 3, dadurch gekennzeichnet, daß die Mittel zum Auftragen der Tropfen (17) des Heißschmelzklebemittels einen beheizten Tank (20, 21) für das Heißschmelzklebemittel und eine Auftragerolle (23) aufweisen, welche um eine Achse rotiert, die parallel zum Zuschnitt (1) und rechtwinklig zu dessen Bewegungsrichtung vorgesehen ist und über den Umfang verteilt Kerben oder Kissen (123) aufweist, die radial hervorspringen und abwechselnd mit den gegenüberliegenden Oberflächen der Zuschnitte (1) und mit dem verflüssigten Heißschmelzklebemittel in Kontakt kommen, wobei die Rotation der Rollen mit der Bewegung der Zuschnitte (1) synchronisiert ist.

6. Vorrichtung nach Anspruch 5, dadurch gekennzeichnet, daß die Auftragerolle (23) zwei oder mehr im Umfang verlaufende Kerben oder Kissen (123) zum Auftragen der Tropfen (17) des Heißschmelzklebemittels aufweist, die winklig über den Umfang der Auftragerolle (23) verteilt angeordnet sind.

7. Vorrichtung nach Anspruch 5, dadurch gekennzeichnet, daß die Auftragerolle zwei oder mehr Kerben oder Kissen (123) aufweist, die in einer Linie zueinander oder wahlweise winklig versetzt entlang der Längsachse der Rolle verteilt sind.

8. Vorrichtung nach Anspruch 6 und 7, dadurch gekennzeichnet, daß die Auftragerolle (23) aus einer, zwei oder mehreren coaxialen Scheiben (323) besteht, die auf der selben Achse angeordnet sind, um gemeinsam zu rotieren und um zu ermöglichen, axial getrennt voneinander angeordnet zu werden.

Revendications

1. Procédé de fabrication de paquets de cigarettes rigides avec un couvercle à charnière, lequel procédé met en oeuvre le pliage d'un flan (1) de matériau d'emballage qui a une forme généralement rectangulaire et est pourvu sur chaque côté longitudinal de paires de languettes (101, 101', 201, 201') destinées, lorsqu'on les place l'une sur l'autre, à former les côtés longs et étroits du paquet et de la charnière, et, afin de fixer les languettes (101, 101', 201, 201') l'une sur l'autre, l'application d'une colle à froid, c'est-à-dire d'une colle qui est à l'état liquide ou fluide à la température ambiante, sur un côté de l'une des languettes (101', 201') de chaque paire associée avec l'une des faces du flan (1), caractérisé en ce que, dans le but de fixer les languettes (101, 101', 201, 201') pendant que la colle à froid sèche,

a) sur le côté des autres languettes (101, 201) de la face opposée du flan qui sont libres de colle à froid, on applique au moins une pointe (17) de colle thermofusible, c'est-à-dire d'une colle qui n'atteint son état fluide qu'à une température au-dessus de la température ambiante, et est sèche, solidifiée ou déshydratée à la température ambiante,

b) les languettes (101, 201) du même côté de la charnière et du paquet et sur lesquelles les pointes (17) de colle thermofusible sont appliquées, sont adjacentes entre elles,

c) la colle à froid (16) est appliquée avant que les pointes (17) de colle thermofusible soient appliquées, ces dernières étant appliquées immédiatement avant le pliage ou la formation du flan en paquet,

d) la colle à froid et les pointes (17) de colle thermofusible sont appliquées en des zones ne coïncidant pas entre elles sur les surfaces mutuellement en contact opposées.

2. Procédé selon la revendication 1, caractérisé en ce que les flans (1) sont transportés selon une direction transversale aux flans et aux zones (16) sur lesquelles la colle à froid est appliquée, pendant que les pointes (17) de colle thermofusible sur les languettes (101, 201) de chaque côté du flan (1) sont appliquées simultanément et toutes alignées dans le sens longitudinal du flan, c'est à dire per-

pendiculairement à la direction dans laquelle il est transporté.

3. Dispositif pour la mise en oeuvre du procédé selon l'une quelconque des revendications précédentes et comprenant un bloc applicateur de colle avec des moyens (6, 7, 8) pour transporter les flans d'emballage (1) perpendiculairement à leurs côtés longitudinaux d'une entrée à une sortie à travers au moins un poste applicateur de colle, des moyens de transport (8) pour éjecter les feuilles d'emballage (1) du bloc applicateur de colle et pour en alimenter le poste suivant de pliage/formation, dispositif dans lequel le bloc applicateur de colle comprend un premier poste applicateur de colle à froid avec des moyens (9, 10, 14, 15) pour appliquer de la colle à froid (16) caractérisé en ce que le dispositif comprend

a) un poste applicateur de colle thermofusible avec des moyens (20, 21, 22, 23) pour appliquer des pointes (17) de colle thermofusible sur les zones non-coïncidentes respectives des languettes (101, 101'; 201, 201') de la feuille d'emballage (1), les moyens applicateurs de colle thermofusible (20, 21, 22, 23) étant situés du côté de la sortie des moyens de transport (8) pour éjecter les feuilles d'emballage (1) du bloc applicateur de colle et directement en amont du bloc suivant pour les plier et pour former le paquet,

b) les moyens (10, 23) applicateurs de la colle à froid et de la colle thermofusible sont formés par des rouleaux tournant autour d'un axe parallèle à la dimension longitudinale du flan (1) et venant en contact avec les zones (16, 17) correspondantes des languettes (101, 101'; 201, 201') correspondantes sur les faces opposées du flan (1),

c) les moyens (20, 21, 22, 23) applicateurs de colle thermofusible sont situés en aval des moyens (9, 10, 14, 15) applicateurs de colle à froid par rapport à la direction dans laquelle les flans (1) sont transportés.

4. Dispositif selon la revendication 3, caractérisé en ce que la boîte et le couvercle à charnière sont maintenus en forme seulement par deux très petites pointes (17) de colle thermofusible pour chacune desdites parties, chaque pointe étant placée sur la languette (101, 201) de chacun des deux côtés longs et étroits de la boîte et du couvercle à charnière.

5. Dispositif selon la revendication 3, caractérisé en ce que les moyens pour appliquer les pointes (17) de colle thermofusible sont pourvus d'un réservoir (20, 21) chauffé pour la colle thermofusible et d'un

rouleau applicateur (23) tournant autour d'un axe parallèle au flan (1) et perpendiculaire à la direction de déplacement de celui-ci et munis de crans ou tampons (123) périphériques faisant saillie radialement et entrant en contact alternativement avec les surfaces opposées des flans (1) et avec la colle thermofusible liquéfiée, la rotation dudit rouleau étant synchronisée avec le mouvement des flans (1).

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6. Dispositif selon la revendication 5, caractérisé en ce que le rouleau applicateur (23) porte deux, ou plus, crans ou tampons (123) périphériques pour appliquer des pointes (17) de colle thermofusible répartis angulairement sur le pourtour dudit rouleau applicateur (23).

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7. Dispositif selon la revendication 5, caractérisé en ce que le rouleau applicateur (23) comprend deux, ou plus, crans ou tampons (123) répartis en ligne l'un par rapport à l'autre ou facultativement décalés angulairement le long de l'axe du rouleau.

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8. Dispositif selon les revendications 6 et 7, caractérisé en ce que le rouleau applicateur (23) consiste en un, deux ou plus, disques (323) coaxiaux montés sur le même arbre de façon à tourner ensemble et à permettre qu'on les sépare axialement l'un de l'autre.

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